

LVII.—On the Antheridia and Spores of some species of Fucus.

By MM. J. DECAISNE and GUSTAVE THURET*.

THE existence of sexes in the Algae having been admitted, in our opinion, in the commencement of the last century, from incomplete observations, we went to the coast of the British Channel, with a view to throw some light upon this obscure point of science. Having met with various new facts in the course of our observations, we shall point out in a few words the principal results of our researches. Our investigations were principally made on *Fucus serratus*, *vesiculosus*, *nodosus* and *canaliculatus*.

The first two appeared to us diœcious; the two others monoœcious. The conceptacles, in the male individuals, are filled with articulated filaments, which bear numerous antheridia in the form of vesicles containing red granules. These antheridia are expelled by the orifice of the conceptacles; if we examine them with the microscope, we see issue from one of their extremities transparent corpuscles nearly pear-shaped, each one inclosing a single red globule; each one of these corpuscles is furnished with two very thin cilia, by means of which it moves with extreme vivacity.

The analogy of these corpuscles with what have been called the spermatic animalcules of *Chara*, the Mosses and the Liverworts, is very remarkable. In *Chara*, as in the Mosses, in *Marchantia*, *Targionia*, and the *Jungermanniæ*, one of us has ascertained the presence of the two locomotive cilia, inserted toward the extremity of a filiform body commonly wound spirally.

According to these observations, from the promptitude with which the corpuscles of the *Fucus* decompose and form, at the bottom of the vessel in which they are placed, a layer of inert granules which soon completely disappear, we think we are justified in regarding the vesicles which contain them as analogous to the antheridia of other cryptogamous plants, and we cannot admit the opinion which attributes to these vesicles the functions of sporangia, to the corpuscles those of spores.

Each spore of the diœcious *Fuci* is simple, oval or pyriform, covered with a ciliated membrane similar to that of *Vaucheria*, but we have never remarked any motion in it.

After their exit from the conceptacles the spores present an extremely curious phenomenon. At first simple and perfectly undivided, they sooner or later separate into eight sporules, which are gradually isolated, become regularly spherical, and finally commence each one to germinate.

In *Fucus nodosus* and *F. canaliculatus* the conceptacles in-

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close both spores and antheridia. In the first the spore, covered with a ciliated membrane, divides into four sporules, as MM. Crouan have already observed; but, as in the two preceding species, it is simple in the conceptacle.

The spores of *Fucus canaliculatus* present a very remarkable structure: the ciliated membrane which covers them presents very fine and close folds, which disappear soon after the spore has fallen to the bottom of the water, and which allow this membrane to extend and to form around the spores a large transparent margin. These spores divide into two sporules.

From the preceding observations we think we may draw the following conclusions:—

That some of the *Fuci* of our coasts contain diœcious species, and others monœcious.

That the spores of the *Fucaceæ*, however simple they may be in principle, follow in their division the number 2, or one of its multiples.

That in the present state of science, these characters of fructification being added to those of vegetation, require the establishment of three distinct genera:

Fucus (*F. serratus*, *vesiculosus*, &c.);

Ozothalia vulgaris (*F. nodosus*);

Pelvetia canaliculata (*F. canaliculatus*).

LVIII.—*On the Development, Structure and Economy of the Acephalocysts of Authors; with an account of the Natural Analogies of the Entozoa in general.* By HARRY D. S. GOODSIR, Cons. Mns. R.C.S.E.*

AN opportunity having been afforded him by Dr. Gairdner of examining a large mass of hydatids taken after death from the abdomen of a patient who had been long labouring from distension of that cavity, Mr. Goodsir found that they belonged to a new form of Entozoon, which he has called *Diskostoma Acephalocystis*, the generic term being derived from the peculiar structure of the external membrane covering the vesicles; for this, examined under a high power, was seen to be intersected by numerous branching tubuli that arose by open mouths from numerous discs of different sizes. These open stomata and tubes appeared to be organs of nutrition. Immediately beneath the above membrane was another of more delicate texture, which sent off very fine septa that traversed and intersected the body of the hydatid, for the purpose apparently of rendering it support. The mode of generation and development of these animals is very simple. The young hydatids make their appearance as simple cells, gradually increasing in size, beneath the internal lining membrane of the

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